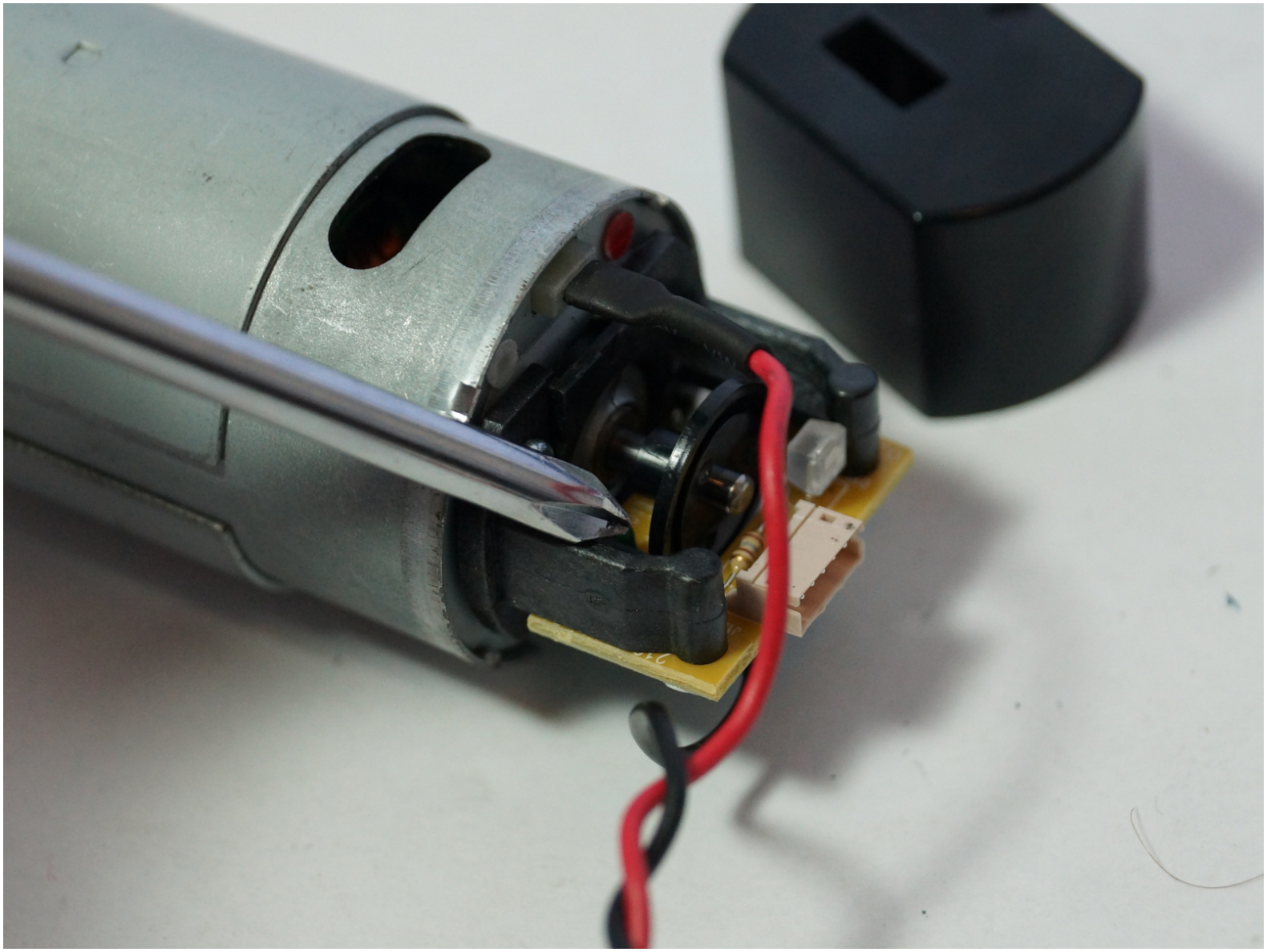
Logitech G27 Optical Encoder Replacement

This guide will explain all steps necessary to replace the optical encoder in the Logitech G27 racing wheel.

Written By: Grant Blake



INTRODUCTION

If your Logitech G27 will not respond properly, even after calibrating, you may need to replace its optical encoder. The optical encoder is a small electronic device that turns the wheel's rotation into an electronic signal for the computer to understand. It isn't too hard to replace, you just need plenty of patience because you'll be taking out a lot of screws! Make sure your wheel is completely unplugged before starting this replacement.

TOOLS:

- 4mm Allen Wrench (1)
- Phillips #1 Screwdriver (1)
- iFixit Opening Tools (1)
- Phillips #0 Screwdriver (1)

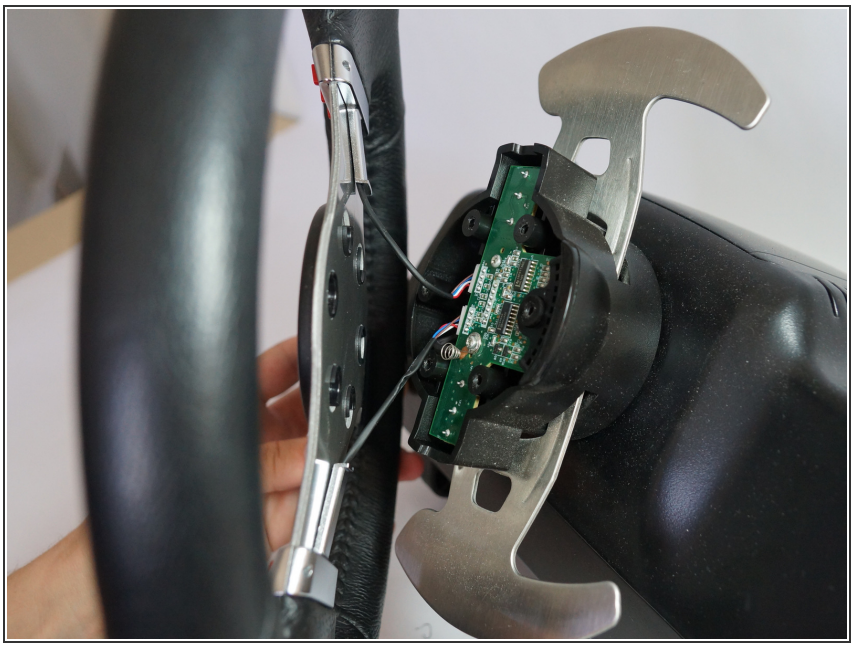
Step 1 — Steering Wheel

- Remove the six gray 25mm hex screws with a 4mm allen wrench.

⚠ Watch out when you lift the wheel up, as there are fragile wires connected to the bottom side.

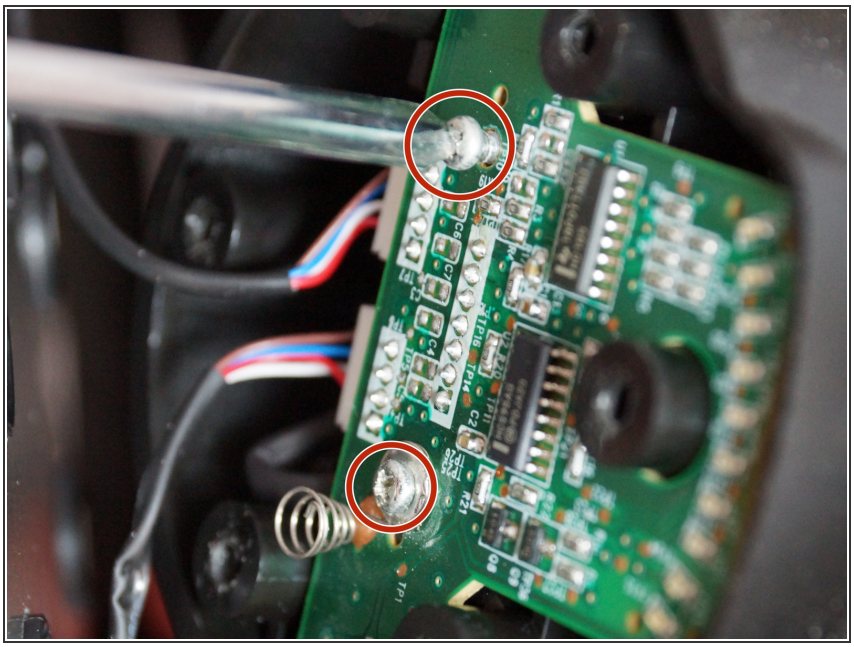
- Carefully lift up the wheel, but do not disconnect it from the rest of the device.

Step 2



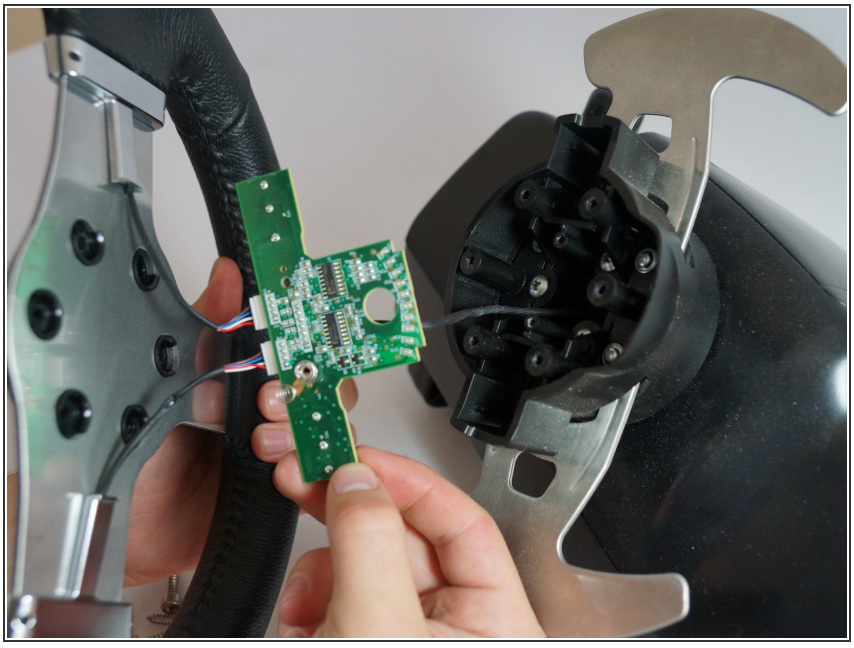
- Carefully lift the wheel off of the hub, exposing the 2 shifter paddle wires and PCB board.

Step 3



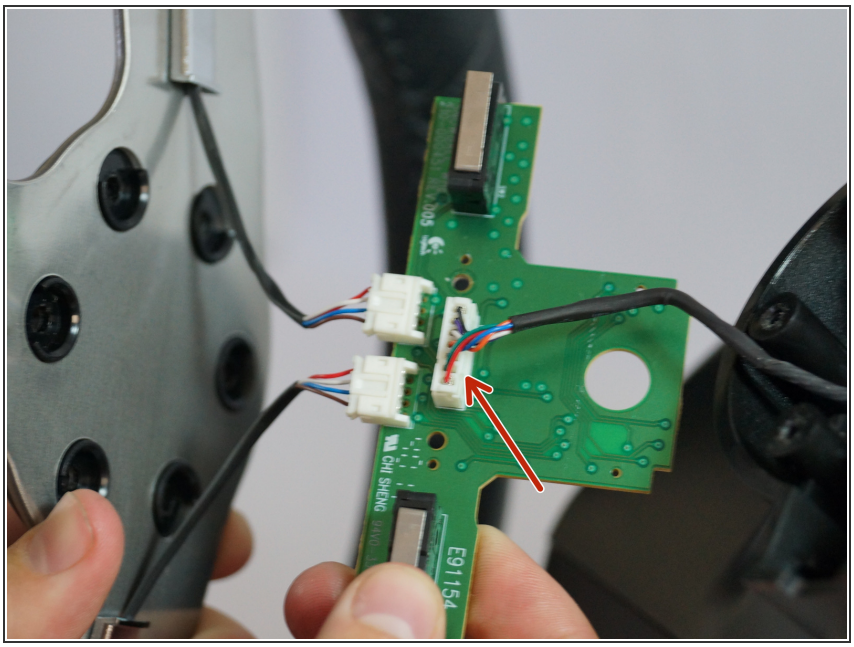
- Remove the two 7.5 mm silver screws holding the green PCB board in the wheel with a Phillips #1 screwdriver.

Step 4



- Carefully remove the PCB board from the wheel hub.

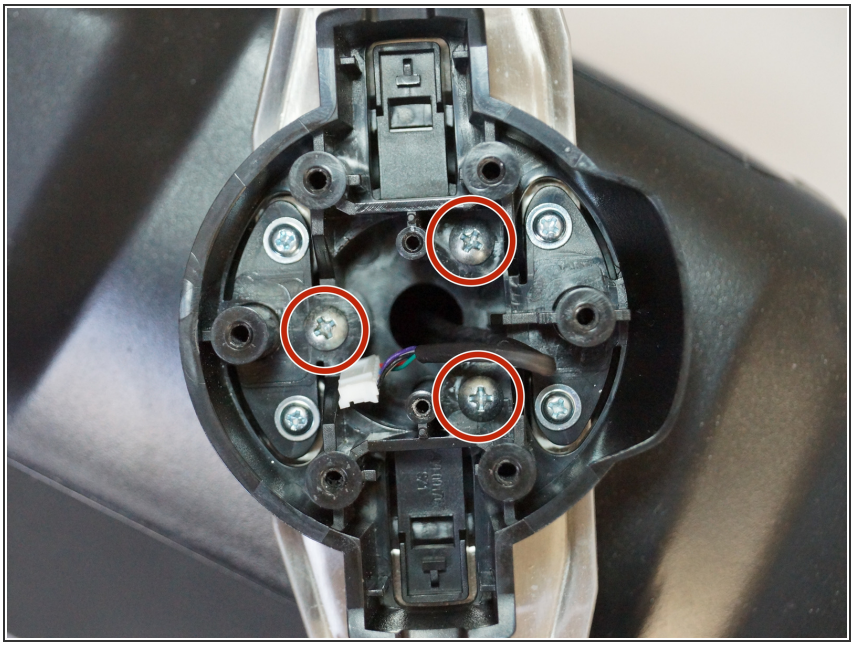
Step 5



- Carefully pinch and unplug the large 7-pin connector under the PCB board.

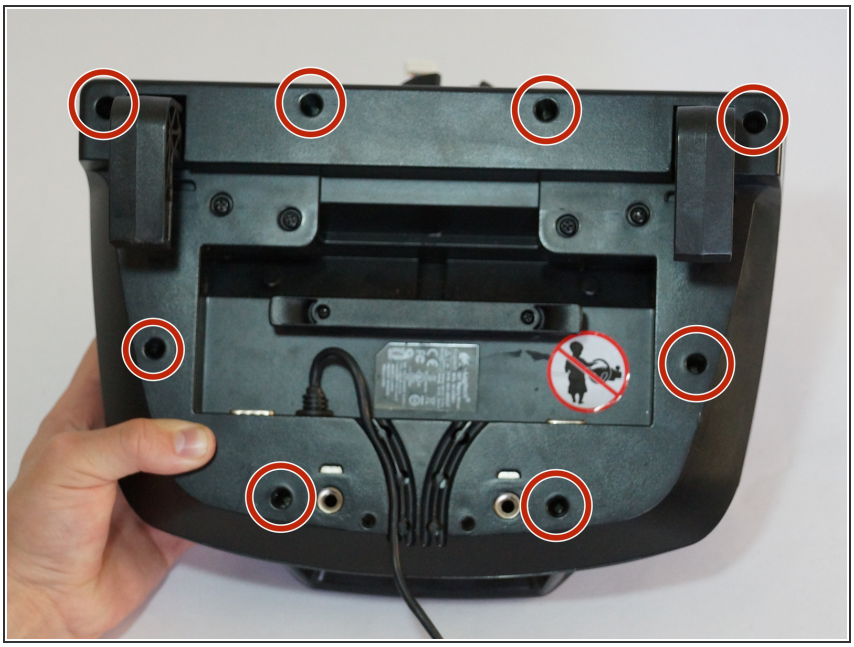
⚠ Be careful when unplugging this adapter, try not to pull on the wires to avoid damaging them. Instead, wiggle around the plastic connector while pulling on it to loosen it.

Step 6



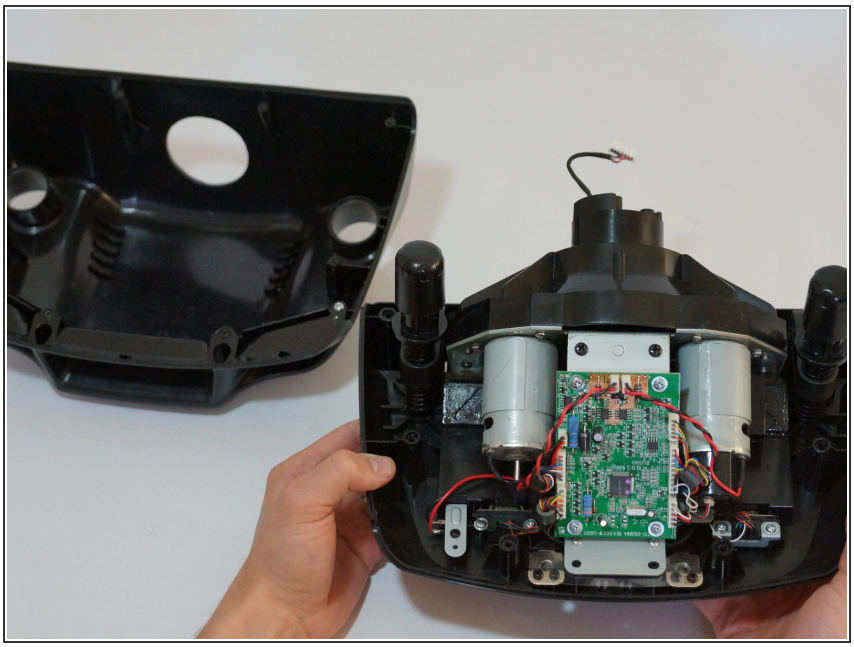
- You can now fully remove the wheel from the hub. Set it aside until you put the wheel back together.
- Remove the innermost three 37.5mm silver screws with a Phillips #1 screwdriver.
- Remove the wheel hub and push the connector through the center of the hub.

Step 7



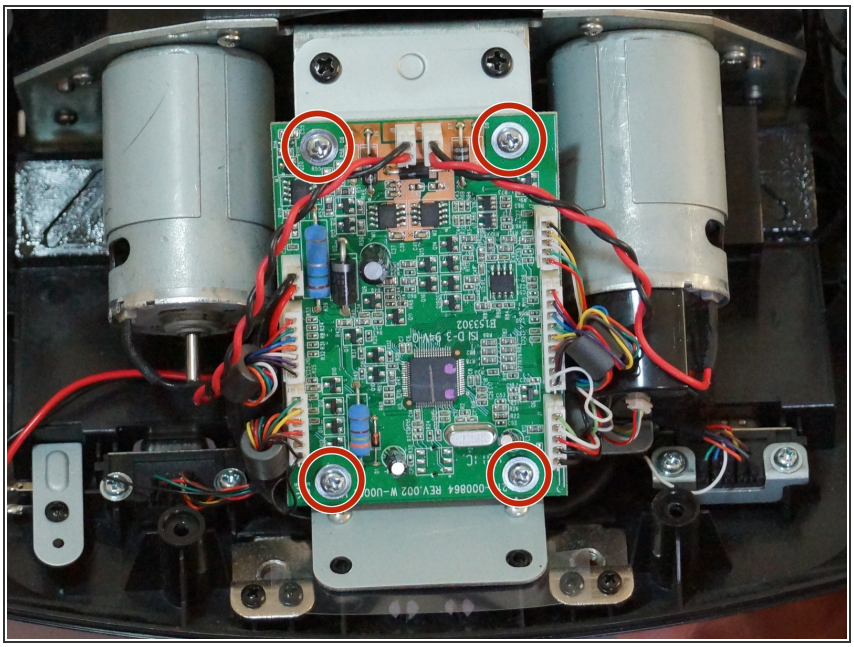
- The wheel hub can now be set aside and flip over the steering wheel housing to reveal the under side.
- Remove the eight 15.9mm silver surrounding screws underneath the wheel housing with a Phillips #1 screwdriver.

Step 8



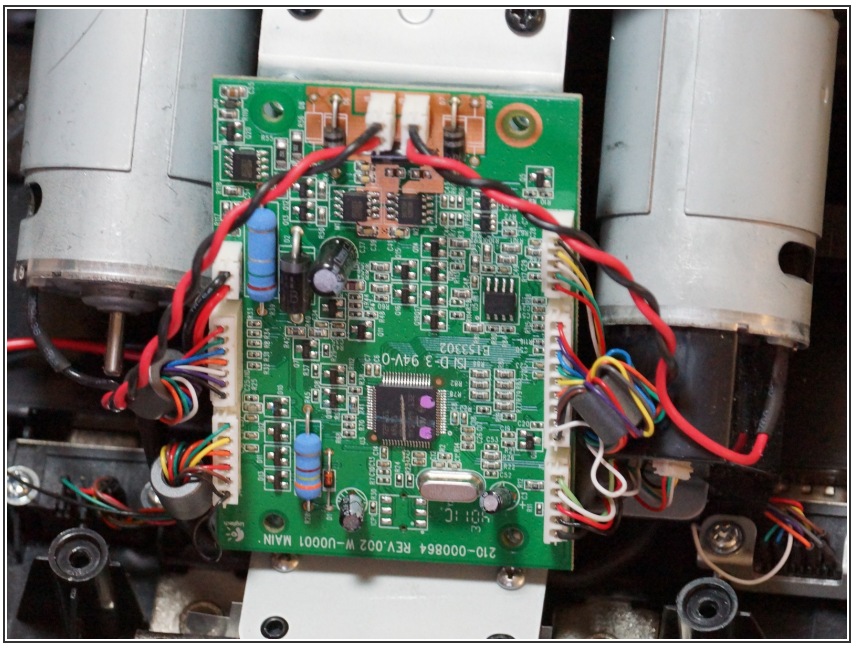
- Rotate the housing back over and remove the top half of the housing revealing the majority of the components of the wheel.
- The housing cover can be set aside until you put the wheel back together.

Step 9



- Remove the four 7.3mm silver screws attaching the green PCB board to the motor housing with a Phillips #1 screwdriver.

Step 10



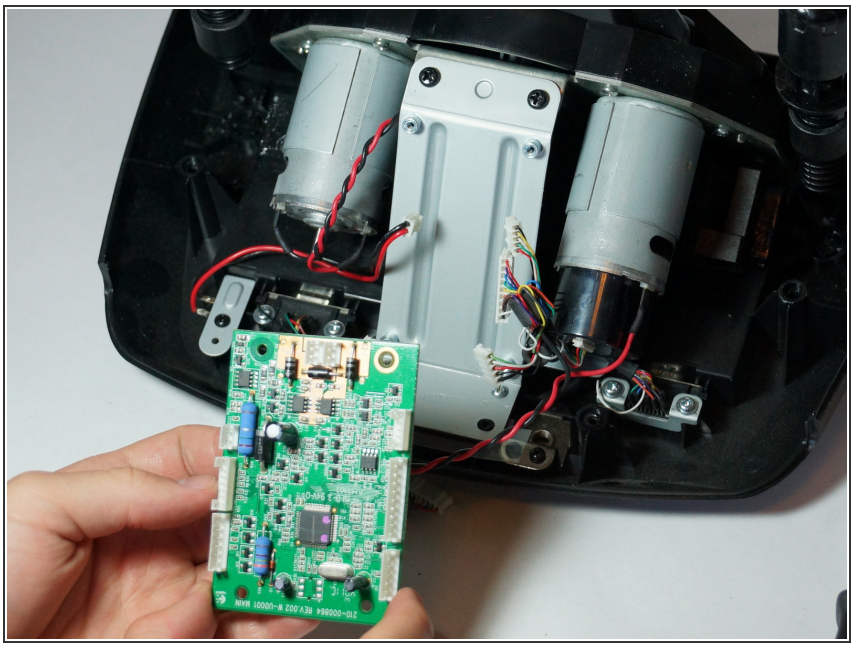
- Unplug the three plastic connectors on the left side of the PCB board.
- Unplug the two plastic connectors on the top of the PCB board.
- Unplug the three plastic connectors on the right side of the PCB board.

⚠ Pulling the plastic connectors requires a lot of force, but be careful and don't pull directly on the wires. Try to wedge or push the male side of the connector out.

ⓘ If you need some extra leverage when removing these connectors, try using a plastic opening tool to pry off the connectors.

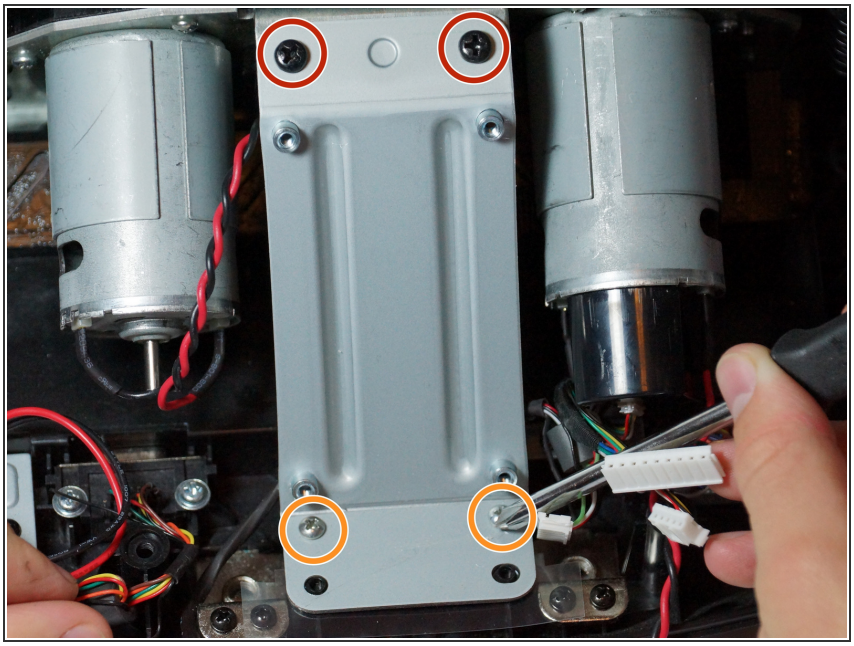
ⓘ Removing these connectors allows easier access to the four screws attaching the PCB board mount to the motor housing.

Step 11



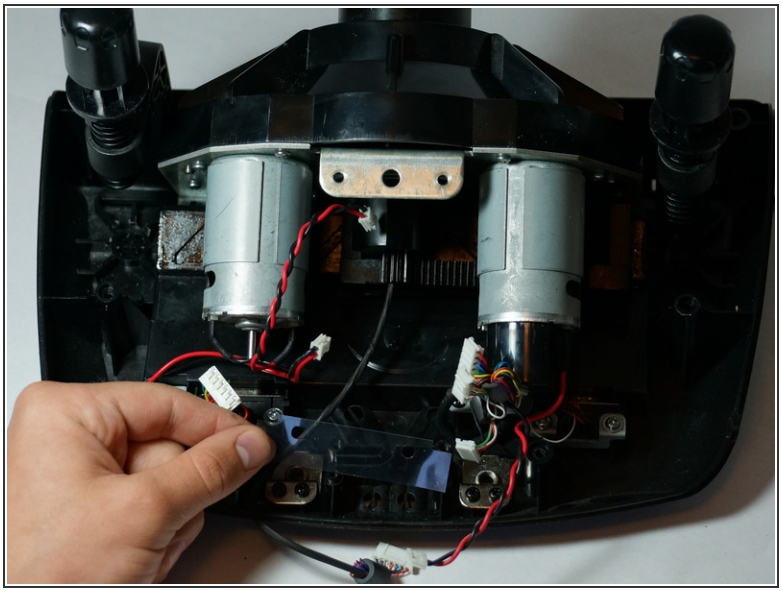
- Remove the PCB board after all of the plastic connectors are disconnected.
- You can now set it aside.

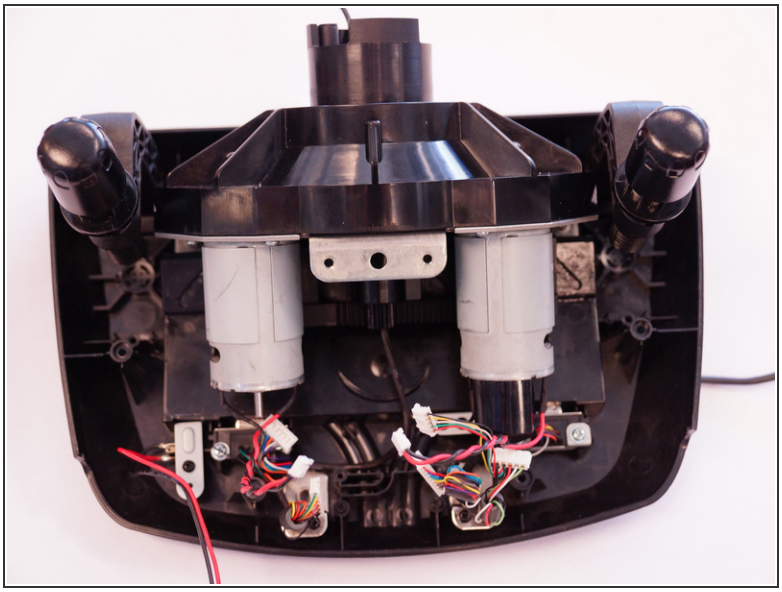
Step 12



- Remove the two 12.3mm upper black screws with a Phillips #1 screwdriver.
- Remove the two 15.5mm bottom silver screws with a Phillips #1 screwdriver.

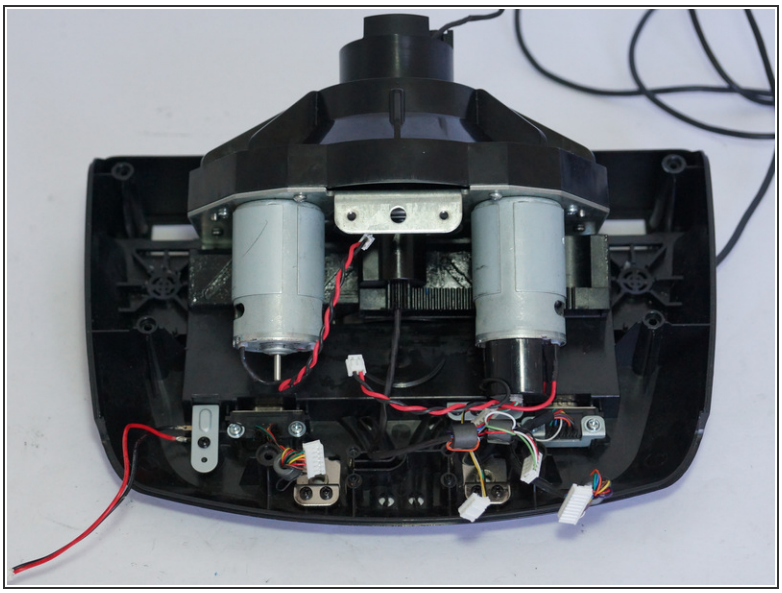
Step 13

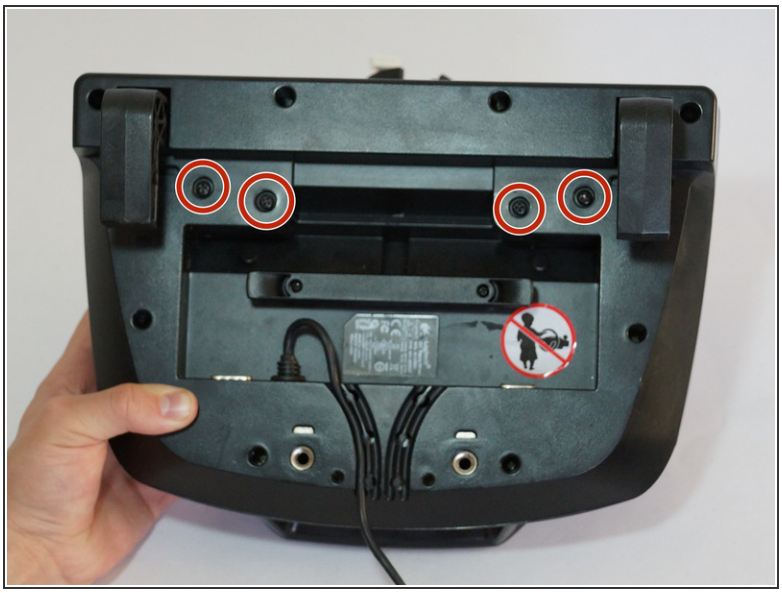




- Remove the PCB board mount and remove the clear plastic piece underneath.
- Set them aside until you reassemble the wheel.

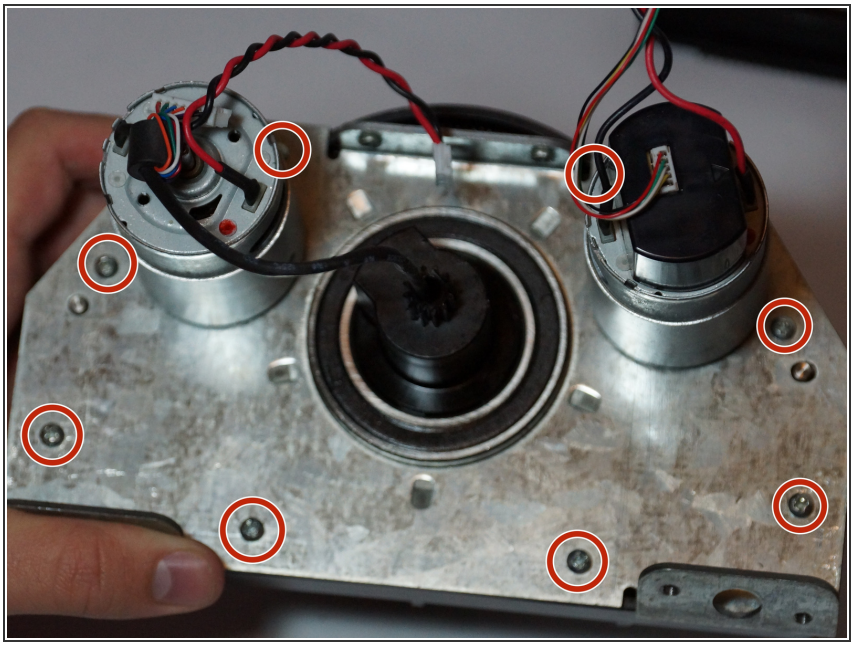
Step 14 — Optical Encoder





- After following the prerequisite guide, invert your device.
- Remove the four center-most screws from the bottom of the device with a Phillips #1 screwdriver.
- Invert your device back to its original position, and completely remove the motor housing from the rest of the device.

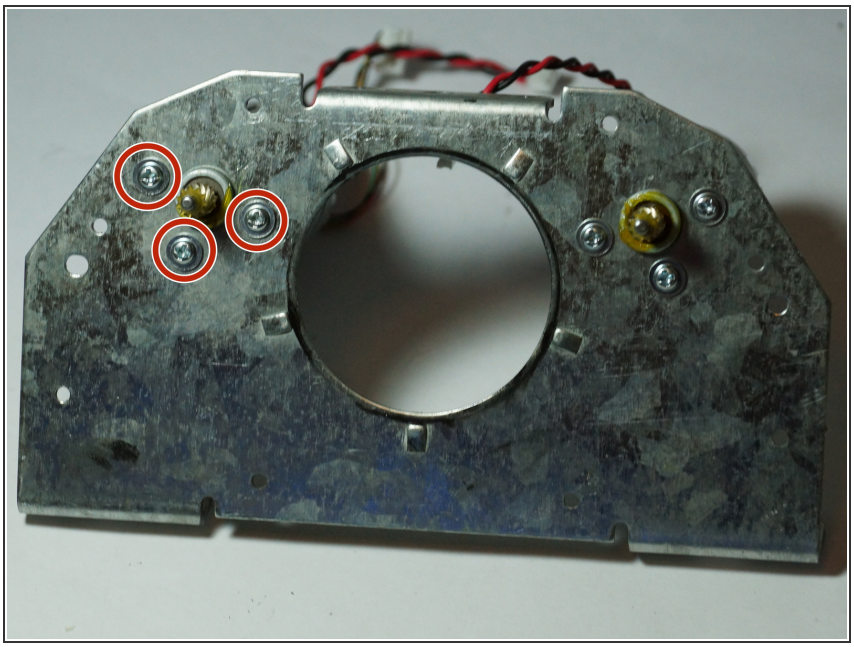
Step 15



- Remove the eight screws attaching the metal motor housing to the plastic with a Phillips #1 screwdriver.
- Completely remove the motor housing from the plastic.

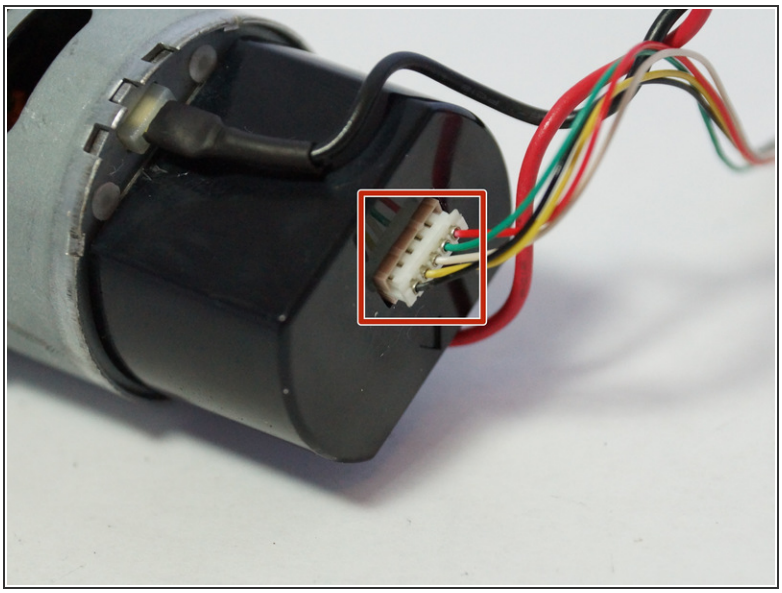
In this picture, the optical encoder is attached to the end of the right-most motor. It has a black plastic case around it for protection.

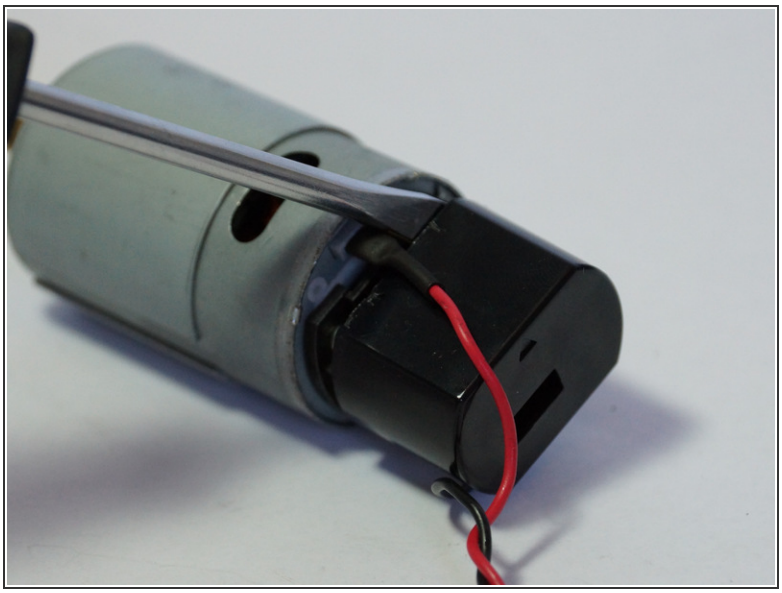
Step 16



- Turn the device around, and remove the three screws attaching the left most motor to the metal backing using a Phillips #1 screwdriver.
- Completely remove the motor from the metal backing. This will make it easier to move around when replacing the optical encoder.

Step 17



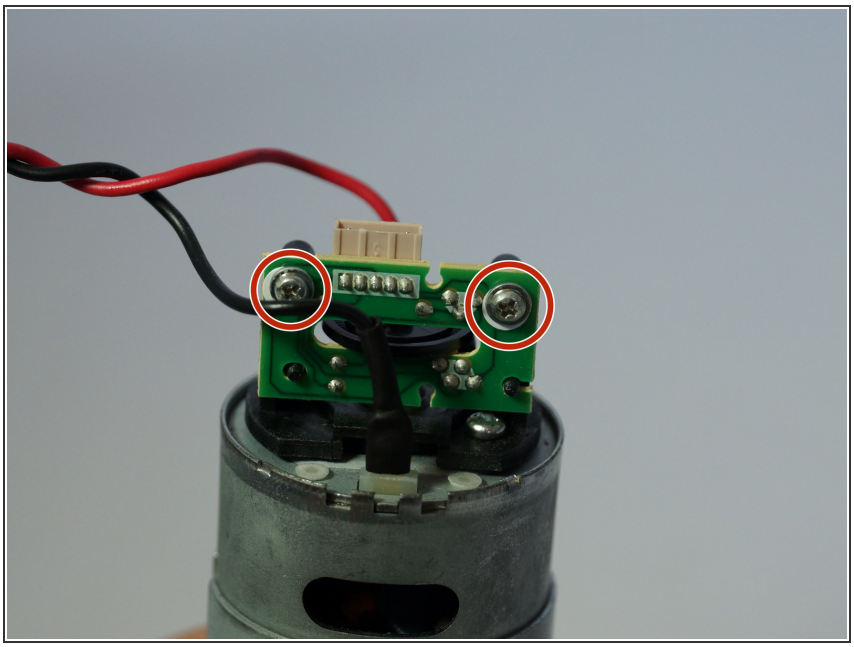


- Remove the white 5-pin adapter from the end of the optical encoder.

⚠ Use the same amount of caution with this adapter as you did with all the others: don't pull directly on the wires and wiggle it out.

- Remove the plastic casing by prying it off with a screwdriver or a plastic opening tool.

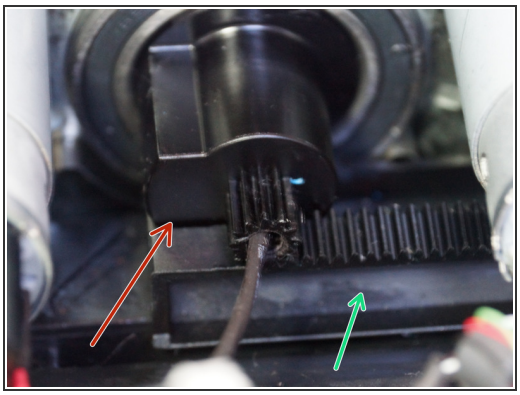
Step 18

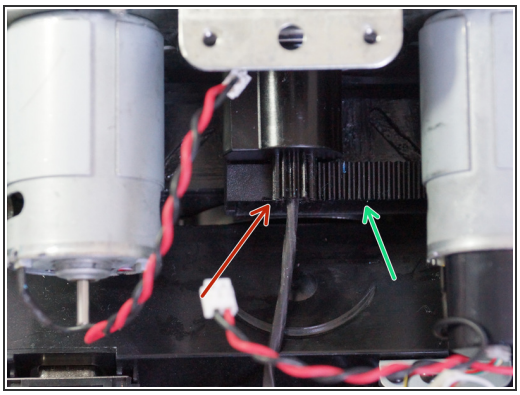


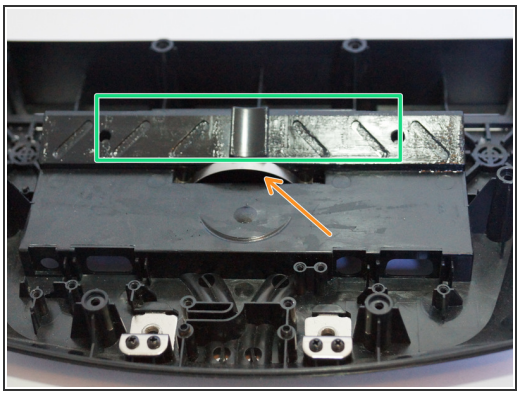
- Remove the two silver screws from the underside of the optical encoder with a Phillips #0 screwdriver, and the circuit will be free from the motor and ready to replace!

⚠ Be careful not to bend the light or the black receiver that stick up off the board. If they don't line up, your wheel won't be able to calibrate at all and you'll have a very hard time trying to line them back up.

Step 19







- During reinstallation make sure when doing this step to align the stop on the wheel gear with the track as shown in the second and third pictures.
- Also make sure that the metal half-circle clip is placed properly inside the slot.
- After placing the metal clip in the slot, place the plastic cog on top of the clip and on the rail.

To reassemble your device, follow these instructions in reverse order.

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